

AD-766 489

CAN THE TRANSPORTATION LOGISTICS LESSONS
LEARNED IN VIETNAM APPLY TO EUROPE

James M. Fleming

Army War College
Carlisle Barracks, Pennsylvania

18 October 1971

DISTRIBUTED BY:



National Technical Information Service
U. S. DEPARTMENT OF COMMERCE
5285 Port Royal Road, Springfield Va. 22151

FLEMING

AD 766489

The views expressed in this paper are those of the author and do not necessarily reflect the views of the Department of Defense or any of its agencies. This document may not be released for open publication until it has been cleared by the Department of Defense.

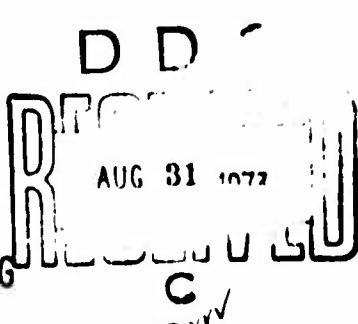
18 OCTOBER 1971

1
3
STUDENT
ESSAY

CAN THE TRANSPORTATION LOGISTICS LESSONS
LEARNED IN VIETNAM APPLY
TO EUROPE?

BY

LIEUTENANT COLONEL JAMES M. FLEMING
TRANSPORTATION CORP.



NONRESIDENT COURSE

US ARMY WAR COLLEGE, CARLISLE BARRACKS, PENNSYLVANIA



Approved for public
release; distribution
unlimited.

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. Department of Commerce
Springfield VA 22151

31

USAWC RESEARCH ELEMENT
(Essay)

CAN THE TRANSPORTATION LOGISTICS LESSONS
LEARNED IN VIETNAM, APPLY
TO EUROPE?

by

Lieutenant Colonel James M. Fleming
Transportation Corps

US Army War College
Carlisle Barracks, Pennsylvania
18 October 1971

Approved for public
release; distribution
unlimited.

AUTHOR: James M. Fleming, LTC, TC
TITLE: Can the Transportation Logistic Lessons Learned
in Vietnam apply to Europe?
FORMAT: Essay

This essay explores the relevant lessons learned and planning considerations of transportation logistics in Vietnam and relate their applicability to transportation planning and future operations in Europe. Basic problem areas and recommendations identified by the Joint Logistics Review Board (JLRB) and other writings on transportation in Vietnam are reviewed and lessons applicable to Europe are identified and described.

Main emphasis is given to the crucial buildup period of any conflict when the initial shortages of logistic resources create most problems. Many of the lessons learned in Vietnam only reiterate lessons relearned while others provide a new dimension in our future thinking.

I

INTRODUCTION

In referring to Vietnam, General Westmoreland said that the Army must profit from the lessons learned in Viet Nam but must exercise caution because the operations in Southeast Asia were unique. Many of the lessons learned have broad applications, but some do not.¹

At the termination of each significant military operation, it is wise to review and analyze the experiences and lessons learned from the conflict in order to keep from making the same mistakes a second time.

History sometimes yields lessons of direct applicability which too often go unrecognized and unheeded - - presumably on the naive assumption that 'this time everything is different'."

Preface to the *Sinews of War: Army Logistics 1775-1953*

This paper will review transportation experiences in Vietnam in an attempt to apply them or relate them to our present or future position in Europe.

It is said, the war in Vietnam is a transportation

¹W. C. Westmoreland, General, "A New Thinking Plateau, Essential for Army Progress," *Armed Forces Magazine*, (1 Dec 1968), p. 34.

war. Never in our history have we had to support major combat forces 10,000 miles from our home base of supply under virtually peacetime conditions.

Vietnam was also unique in that it forced reliance on the complete reversal of the normal methods of in-theater movements. As the MACV J-4 said in 1965:

In a normal theater of operations such as Europe, one relies on the five means of transportation in priority -- rail, road, pipeline, inland waterway, and finally air. But here, [in Vietnam] because of VC interdiction of surface means of transportation, we rely on them in inverse order -- air first, then on water, there is no pipeline, then on roads, and last on rail.²

When the troop strengths are at a minimum, the policy has always been to maintain a maximum of combat forces on active duty to the detriment of combat service support forces. Vietnam was no exception.

From the very beginning of the buildup in 1965, during those crucial days at the start of the conflict, combat forces were more essential than logistic forces.

It was recognized early in Vietnam that there were inadequate ports and airfields and no supply and transportation logistic organizations. Nevertheless, the grave tactical situation forced General Westmoreland

²US Military Assistance Command Vietnam, Command History 1965 (U), TOP SECRET, (1966) p. 85.

to accept combat forces as rapidly as they could be made available and to improvise their logistic support.³

Vietnam did prove that the limited active duty logistic personnel could handle the buildup without the call-up of the reserve logistic units earmarked for such a buildup, but with the loss of effective supply management, inefficiency in materiel distribution, and heavy reliance on contract and third country personnel.

The most comprehensive study of logistic support and lessons learned in Vietnam was conducted by the Joint Logistics Review Board (JLRB) in 1969-1970. Of the total 265 recommendations - 54 or 20% applied to transportation. It is this presidentially appointed study effort that forms the basis for most of the major findings, recommendations, and the lessons we have learned concerning the logistic support during the Vietnam era.⁴

In reviewing the experiences in Vietnam, it is essential to focus on basic principles of transportation logistics which are of lasting value and should

³U.S.G. Sharp, Admiral, and W.C. Westmoreland, General, Report on the War in Vietnam, Washington: US Government Printing Office (1968), p. 99.

⁴Report of the Joint Logistics Review Board, Logistic Support in the Vietnam Era (U) (No date), Vol I, p. v. (hereafter referred to as the JLRB) 1970.

provide some guidance to improve the efficiency and economy of future logistic plans and operations.

II

TRANSPORTATION - LOGISTICS

Transportation is part of logistic services but is usually considered an independent function of logistics. It provides the means to bring together the logistic elements essentially needed to create and effectively support combat forces.

Range of Activities

A range of transportation activities make up the distribution-movement system from the industrial base in CONUS to the troops in the forward combat areas.

The most restrictive element in the whole system determines the maximum tonnages permitted to move unencumbered through the total pipeline network,

History has proven that the ports are the most restrictive element in the chain, especially critical are the overseas ports. This was borne out again in Vietnam, when it was said that 10 ports in the United States could out ship more than one port in

Vietnam could receive.⁵

Strategic Mobility

The capability to move men and materiel from CONUS to the theater (strategic mobility) was critical during the buildup stages in Vietnam. Operations were supported within the CONUS peacetime environment as a "business as usual" war, which forced the application of ad hoc planning and the use of "crisis management".

Requisitioning of ships and activation of CRAF⁶ plus mobilization, not available in Vietnam, would be vital to support any general war in Europe. In a limited contingency, the Joint Chiefs of Staff augmented strategic lift would probably be sufficient to support the intratheater requirements of a small force.

Where the merchant ships refused to leave their regular trade routes to assist in Vietnam⁷, the many merchant shippers using the regular trade routes to Europe could probably be relied upon to be more receptive to assist in any future European contingency.

⁵Jack C. Fuson, BG, "Land Transportation in Vietnam," *Transportation Proceedings*, (Aug 1968), p. 10.

⁶Civil Reserve Air Fleet.

⁷US Senate, Committee on Armed Services, *Airlift and Sealift to South Vietnam*, 90th cong., 1st sess., 1967, p. 7.

These shippers would not be in danger of losing their regular routes as they were in Vietnam. In a general war in Europe, requisitioning of ships would preclude this concern.

The basic problems encountered in Vietnam and a prime concern in any future conflict in Europe involves the reception of reinforcements and the throughput of supplies from the coasts or airfields to the users. When war becomes a war of the masses, it also becomes a war of materiel. Such would be the case in Europe and transportation would be necessary to get the conflict started and transportation resources would be required to sustain it.

III

DISCUSSION OF OBSERVATIONS

General

Most Vietnam veterans feel their tours were the most challenging. But to the transporter, it was without a doubt the 1965-1966 buildup-backlog period that provided the most heartburns and headaches.

As the facilities improved, the backlog subsided, and transportation operations stabilized, different problems arose but none that could equal those during

this initial period. It is with this period in mind that this essay is written. If we do not analyze the most difficult or crucial periods, any resulting changes or recommendations could be treating the symptoms rather than the causes of the problem.

As the JLRB concluded, "History suggests that, in major logistic operations like those in Vietnam, Korea, and World War II, several management problems will always occur during the initial stages of a conflict."⁸ Some of these recurring problems include, transportation capability being a critical factor, logistic capability in the theater being overtaxed and the need for control, and bedrock essentials that are consumed in large quantities, ie., ammunition, POL, and food, will require special attention.

These known problems must be anticipated before actual events compel their consideration.

Transition from Peace to War

Throughout the JLRB review, the emphasis centered on the cruciality of this buildup period.⁹

⁸JLRB, VOL I, p. 73.

⁹IBID, pp 9, 10, and 73.

The logistic excesses and supply management problems still in evidence today can be traced to this decisive transition period. This period saw the influx of combat reinforcements, the flow of supplies into the combat zone, and a sudden and extensive surge in transportation operations.

While this period is normally followed consecutively by the resupply phase when additional equipment arrives, more facilities are built, and pier-side offload operations are routinized; in Vietnam these two phases occurred simultaneously which was possible only due to the gradualness of the buildup.

In Europe, we must assume a faster and larger buildup commensurate with the larger size conflict. Furthermore, we must envision a hectic arrival of troops and equipment during, say, a six month period, carrying some accompanying supplies but depending mainly on prestocked supplies in theater prior to the arrival of the first sea convoy.

In addition, we must have aerial and sea port facilities and lines of communication available to receive and move these forces to their final destinations.

The capabilities used must not proliferate the problems of logistic support as they did in Vietnam. During 1966 to 1969, 31% of all cargo arriving in Vietnam was construction materiels to build larger port

facilities¹⁰. In future Europe, the fact that it will take 1 1/2 tons of fuel to deliver one ton of cargo¹¹ for each 3,700 miles with the C-5A will tend to complicate the logistic support for the larger aircraft.

THE LESSON LEARNED FOR EUROPE: The planner must focus on the critical logistic buildup phase of any future contingency, since this period could establish the general course for the whole conflict or operation.

Transportation Organization

In Vietnam, there was a lack of peacetime organizations, procedures, and equipment available to meet the expanded wartime requirements.¹²

In Europe today, unlike Vietnam in 1965, a large transportation organization is in existence which would form the nucleus of the US transportation effort in any future conflict. This organization will reduce some of the transitional problems encountered in Vietnam, but the key to rapid mobilization is the availability of weapons and equipment and it is more important to have

¹⁰ Report by the Joint Logistics Review Board, Logistic Support in the Vietnam Era (U) (No date), Monograph 18, p. A-32.

¹¹C5 Logistic Planning Manual, MER 416, Lockheed-Georgia Company, p. 5-3.

¹²JLRB, VOL I, pp. 6-7.

materiel "in being" than to have unequipped forces in being.¹³

THE LESSON LEARNED FOR EUROPE: Insure that the specific military transportation units and equipment required during the critical buildup period are in-position in Europe today.

Transportation and Priorities

Transportation is the mover of cargo, passengers move themselves.¹⁴ The biggest customers and users of transportation are the constructors, suppliers, and maintainers. If these users flood the system like they did in Vietnam, the transporters will take the rap as in Vietnam. Vietnam proved that the customers and transporters must be coordinated in their efforts and direction. Transportation cannot function in isolation.

Priorities must be established at a high enough level to insure that the limited transportation capability is used to deliver the most essential commodities.

It was not the combat commanders who did not under-

¹³James A. Huston, Colonel, USAR, *The Sinews of War: Army Logistics 1775-1953*. (1966), p. 656.

¹⁴This means that transporters must be equipped to off-load and clear cargo but passengers move off and clear themselves.

stand logistics in Vietnam, it was the over-anxious logisticians who should have recognized the need for self-regulation but didn't. Transporters are to deliver, not to challenge the suppliers or commanders priorities of what should be delivered. The suppliers, in isolation, cannot set wartime priorities, they must be set by the commander.

THE LESSON LEARNED FOR EUROPE: A theater level system must be in-being to control and set priorities for all US logistic users.

Transportation Movement Control

The lack of centralized traffic management in RVN during the early stages of the conflict contributed to the waste of transportation resources and resulted in a lengthy transition from general confusion to orderly control of common service transportation resources.¹⁵ TMA, PAMPA, and LCOP¹⁶ did not achieve full operational efficiency until after most of the buildup was completed.

¹⁵CINCPAC Briefing to the Members of Task Force ECHO (Transportation Team) JLRB, HQ CINCPAC, Hawaii, Sep. 1969.

¹⁶Traffic Management Agency (TMA) to control intra-RVN movements; Pacific Command Movements Priority Agency (PAMPA) to establish priorities for the flow of ships to RVN; and the Logistics Control Office-Pacific (LCOP) to establish priorities for the flow of supplies to RVN.

From this, it is imperative that the theater commander have a movement control organization to regulate and allocate the flow of men and materiels to avoid backlogs and to provide some degree of asset visibility within the distribution system.

The United States and NATO forces depend on their coastal allies for port operations and other host nations for wartime commercial movement capability. In some cases using non-US controlled LOCs¹⁷ with each nation vying for the use of the same civilian operated transportation net. The Vietnam lesson is of great importance to our European forces and reiterates the need to develop multinational agencies to allocate the multiused resources and to have in-being a working organization to regulate, control, and set both air and sea wartime priorities for inter-country movements among NATO member nations.

Although each nation has national responsibilities for logistic support, steps must be taken to also effect maximum cohesion of the transportation structures within the NATO command by joint and common-nation arrangements and combined movement coordinating actions.

THE LESSON LEARNED FOR EUROPE: In NATO Europe,

¹⁷Lines of Communications.

multinational control agencies and combined national agreements are needed to coordinate transportation and to regulate and control shipments of the member nations.

Inventory in Motion and the C-5A

On commenting on the use of the C-5A, the JLRB found that the use of an air line of communication (ALOC) supported by the C-5A aircraft for resupply, envisions reductions in the need for prepositioned war reserves and operating stocks in the overseas areas.¹⁸ A generally accepted concept that the C-5A will be used in a resupply role immediately on D-Day is a misnomer.

Its primary mission is the deployment of combat forces equipment with the secondary mission of air resupply.¹⁹ If the deployment phase takes six months in a general war, the air resupply will be limited to those "other aircraft" permitted to be used during this period. The C-5A will not normally be available for resupply replenishment during the deployment phase of a general war. Since "inventory in motion" is based on throughput and asset visibility²⁰ which in previous

¹⁸JLRB, Monograph 18, p. 105.

¹⁹C5 Logistic Planning Manual, p. 4-4.

²⁰Theme T. Everton, Colonel, "Inventory in Motion", Army Logistian Magazine, Jul-Aug 1970, p. 13.

wars, including Vietnam, has not been possible during the buildup period, this concept can only be adopted in peacetime and subsequent to the deployment phase, when resupply operations have been stabilized. Therefore, planners should not be misled in believing that this concept alone would permit drastic cuts in prepositioning war reserves and operating stocks overseas.

THE LESSON LEARNED FOR EUROPE: A logistic system based on only peacetime usage with no provision for quick wartime prediction, supplement, and adjustments will give a fictitious sense of economy.²¹

Planning

Vietnam highlighted the deficiency of requirements planning, that is, to state the strategy, list the logistic support required, and rely on the unlimited assets derived from mobilization, ship requisitioning, and CRAF activation to support the proposed operation.

Learning from this, future contingency planning should consider capabilities planning, that is, limiting the combat operations to the extent they can be supported with initially available active duty logistic

²¹Henry E. Eccles, Admiral, USN (Retired), Logistics in the National Defense, (1959), p. 187.

personnel, materiel, and facilities, or to modify plans to live within the constraints of inadequate logistic resources.

THE LESSON LEARNED FOR EUROPE: History continually teaches us to live within the constraints of our logistic resources.

European Sophisticated Facilities

In Vietnam we suffered from inadequate sea and aerial ports, poor roads, and few secure railroads. Since the buildup was gradual, a massive construction program was initiated to provide the capability needed to receive and support the combat operations.²²

In Europe, sufficient commercial port capability exists together with one of the most efficient surface transportation network in the world. We should plan on using these resources to the fullest. But we would be naive and remiss to think of entering any conflict fully dependent upon commercial resources without a minimum of US military capability available, fully equipped, and in-place prior to the hostilities.

In Europe, with pre-hostility agreements of some

²²U.S.G. Sharp, Admiral, USN, "Vietnam: The Buildup and the War", *Transportation Proceedings*, Nov. 1967, p.3.

kind to use certain facilities and be provided with a guaranteed amount of civilian capability, the sophisticated European airfields and seaports should far exceed our requirements in any future contingency. In the case of a local conflict where the facilities and resources are marginal, we would require immediate availability of organic over-the-beach resources and aircraft offload equipment plus STOL²³ aircraft and trucks for clearance inland.

THE LESSON LEARNED FOR EUROPE: US Forces must make maximum use of the sophisticated European facilities and capability with sufficient organic military capability for contingencies.

Lines of Communication

At one time during the initial stages of Vietnam, 122 ships were anchored off-shore due to the saturation of the port of Saigon. This backlog of ships created a situation which literally cut off the sea LOC, leaving the air LOC only, to respond to demands from CONUS. Although a dangerous situation, sufficient essential supplies filtered through the sea LOC and not once were the fighting troops restricted in their operations against the enemy for want of essential supplies.²⁴

²³Short Take-off and Landing.

²⁴US Senate, Committee on Armed Services, The US Army in South Vietnam, 90th Cong., 1st sess., 1967, p. 3.

In Europe, at the outbreak of hostilities, three actions will be taken simultaneously. First, the maintenance of an interior LOC of 'living off the land' by relying on host nation assets; secondly, establishing an exterior LOC to receive augmentation from CONUS; and, thirdly, expanding multiple LOCs to receive worldwide sustaining logistic support.

THE LESSON LEARNED FOR EUROPE: US must insure the availability of both a responsive sea and air LOC.

Logistics-Over-the-Shore (LOTS) Operations

The Vietnam experience highlighted the fact that operations in areas where no established ports exist or the ports have been destroyed will initially require the use of logistics-over-the-shore techniques.²⁵

The JLRB recommended that mobile and/or prefabricated piers (which are also retrievable) be procured and prepositioned so that fixed pier operations can be established or reestablished in a relatively short time.²⁶

Also the use of SHEDS²⁷ and LASH²⁸ techniques would

²⁵JLRB, Monograph 18, 175.

²⁶IBID, p. 139.

²⁷Ship Helicopter Extended Delivery System. "Offloading of cargo by helicopter proves success in Vietnam", Sealift Magazine, May 1968, p. 17.

²⁸Lighter Aboard Ship.

significantly reduce the inherent inefficiencies of LOTS operations. Further, a system of discharge of cargo to points beyond the beach, such as SHEDS, may obviate the need for early port development or repair or possibly limit the scope of this development, and certainly eliminates some of the potential port congestion.

The prepositioning of mobile piers is appropriate for European planning, since the time to produce, procure, and tow these piers into position would make them unsuitable for use after hostilities began.

With massive amounts of supplies entering Europe, there is bound to be congestion and every conceivable effort to eliminate or reduce this congestion must be attempted.

THE LESSON LEARNED FOR EUROPE: Mobile piers must be prepositioned to reduce construction requirements and time to establish or reestablish pier operations.

Containerization

The JLRB recommended that containerization should be exploited by the Services.²⁹ This action would expedite European port operations during the critical deployment

²⁹JLRB, VOL I, p. 21.

phase of a conflict, reduce the requirements for transportation personnel, and where Vietnam experience indicated a 'desire' for full exploitation, the container-oriented seaports of Western Europe require it.

The most serious problem presented by container operations in war is their discharge in-the-stream from non-self sustaining containerships and adopting "break-bulk" military terminal units to this type operation.

THE LESSON LEARNED FOR EUROPE: European ports demand full exploitation of containers for any future operations.

Civilian Resources

In Vietnam, in the absence of mobilization, the United States hired contract civilians to perform military jobs. This demonstrated that a war could be initially supported with heavy reliance on local commercial resources and at the same time competing with the Vietnamese for use of the limited facilities.

Similarly, European planning predicates the pooling of NATO resources, reliance on host nation assets, and the United States competing with their allies for use of the same resources and facilities.

Whereas the recruited third country nationals proved effective in Vietnam, 7% of West Germany's national

labor force are "guest workers"³⁰ from multinational sources, many engaged in transportation operations and whose dependability is untried in wartime.

Peculiar military transportation operations, which have no civilian counterparts or for which the commercial capability cannot be immediately relied on or denied upon but whose capability is essential during the initial stages of a conflict, must be manned, equipped, and in-position in Europe prior to D-Day. As Vietnam proved, only military units could provide the invaluable flexibility and inherent responsiveness which civilian contractors could not.³¹

This military capability must be able to conduct operations without undue delays in obtaining personnel, craft, and equipment.³² Vital military capability includes the personnel and equipment required for LOTS operations, discharge of non-self sustaining container ships in-the-stream, selective aerial port and marine operations, and operations in sand and beach areas.

THE LESSON LEARNED FOR EUROPE: Maximum reliance should be made of all available civilian and host nation

³⁰ Robert A. MacGregor, "West Germany: A New Kind of Drive in the World", US News and World Report, 4 Oct 71, p. 50.

³¹ JLRB, Monograph 18, p. 116.

³² IBID, p. 121.

resources supplemented with military capability for vital transportation operations.

IV

SUMMARY

While the troop deployments in Vietnam were gradual, the materiel buildup came as a surge or flood which was so sudden and massive that it put the sea movement capability literally out of commission early, leaving the ALOC the only responsive link, although it too was saturated at times during the buildup. A chain reaction followed. The initial cargo stream inundated the interior supply system. The tie-up of ships off-shore proliferated the requirement for more ships. The magnitude of cargo into the depots, in turn, tied-up critical truck resources.

Movement control (PAMPA-TMA) and supply regulative (LCOP) agencies were established too late to prevent the confusion. The strategic mobility was adequate but misused and the concept of inventory in motion can be interrupted during the deployment phase without exclusive dedicated air transportation.

It is difficult to determine if all these problems were caused by the demise of the Army technical services and the concomitant loss of a centrally directed chain

of expertise or by the ad hoc "crisis management" developed for the Vietnam conflict.

Whatever the cause, we must develop a regulated, realistic, and controlled total distribution system to cope with any future buildup period, workable in peace with quick transition to war to replace the massive, push-flood approach used in Vietnam.

We must identify the critical voids in the military logistic resources required to be on hand and in-position in peacetime to support the mobilized augmentation forces and the initial resupply deliveries.

Transportation policy must include agreements with host nations and allied nations for the right of emergency use of resources, facilities and air space in any future contingency.

To reduce a similiar ship backlog problem off the coast of Europe, we must:

- Maintain, in-being, a movement control organization to regulate supplies and shipping.
- Establish an off-shore surge point similiar to Japan for Korea and Okinawa for Vietnam.
- Maintain maximum prepositioned equipment in-place to assist expeditious cargo handling.
- Establish bare essential realistic automatic resupply packages.

- Reduce unnecessary construction materiels during the buildup period and rely more on ship-based computers, generators, and expendable supply depots off-shore, mobile piers and LOTS operations, and the use of portable facilities to be assembled by troop labor.

Transportation planning is dynamic, not only because of advances in technology, but more important because of changes in the progress of a war and in the phases of a conflict. The transportation planner must plan for the most likely actions or most representative of situations. He must consider changes in force structure, resources, and requirements which result in modification of priorities and emphasis. He must plan not for overabundance but for a minimum of capability providing responsive and multiple options.

All logistic planners must develop flexible alternative plans which consider various tactical options so as to minimize the dissipation of critical transportation resources.

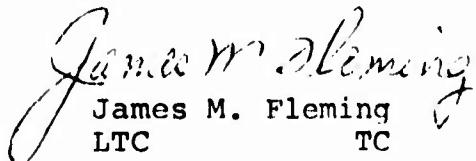
Many of the lessons learned in Vietnam only reiterated lesson relearned while others add new dimension to our thinking of transportation doctrine. Those that repeat old principles are:

- Transportation will always be short.

- We must have a responsive LOC.
- We must live within logistic restraints, maintain movement control organizations, and control logistic users.

Changes which provide a new dimension in our thinking as a result of the Vietnam experience, include:

- Planning on the heavy reliance of existing civilian capability.
- Exploiting containerization.
- Considering the criticality of the buildup period.
- Prepositioning mobile piers.
- Developing concepts which are applicable in peace and can change over to war without difficulty.
- Obtain and maintain pre-negotiated host nation agreements.



James M. Fleming
LTC TC

BIBLIOGRAPHY

1. Brooks, Robert A., "The Transportation War", Transportation Proceedings, Nov. 1967, pp 2-7.
2. Burchinal, David A., General, USAF, "Transportation and the NATO Deterrent", Transportation Proceedings, Jan 1969, pp 2-6.
3. Carrigan, Mark C., Colonel, The Supply Bottleneck in Vietnam - Causes and Cures, Student Essay, Carlisle Barracks: US Army War College, 7 Apr 1967.
4. CINCPAC Briefing to the members of Task Force ECHO (Transportation Team) JLRB, HQ CINCPAC, Hawaii, Sep 1969.
5. Coakley, Robert W., and Leighton, Richard M. Global Logistics and Strategy 1940-1943, Washington: Office of the Chief of Military History, US Army 1955.
6. Coakley, Robert W., and Leighton, Richard M. Global Logistics and Strategy 1943-1945, Washington: Office of the Chief of Military History, US Army 1968.
7. C5 Logistic Planning Manual, MER 416, Lockheed-Georgia Company, 1968.
8. Eccles, Henry E., Rear Admiral, USN Retired, Logistics in the National Defense, Pennsylvania: The Stackpole Company, 1959.
9. Eifler, Charles W., MG, "Management by Conflict", Army Magazine, Mar 1968.
10. Ensor, John O., Colonel, Inventory in Motion: Does the C5A Make it Practicable? Student Essay, Carlisle Barracks: US Army War College (Non Resident Course) 16 Dec 1970.
11. Everton, Theme T., Colonel, "Inventory in Motion", Army Logistian Magazine, Jul-Aug 1970, pp 12-15, 30.

12. Fuller, Elisha J., LTC, The Effects of the C5A on Army Logistics in Europe, Student Essay, Carlisle Barracks: US Army War College, 7 Apr 1967.
13. Fuson, Jack C., BG, "Land Transportation in Vietnam", Transportation Proceedings, Aug 1968, pp 9-10, 18-23.
14. Haeger, Robert A., "West Germany: A New Kind of Drive in the World", US News and World Report Magazine, 4 Oct 1971, pp 87-91.
15. Hatton, G. S., MGen, C.B., DSL, OBE (Retired), "The Influence of Logistics on Military Strategy", The Army Quarterly (British) Vol. LXXII, No. 2, Jul 1956, pp 173-181.
16. Hoefling, John A., LTC, "Intra-Theater Logistics", Army Magazine, Aug 1966, pp 26-35.
17. House of Representatives, Committee on Government Operations, Military Supply Systems, House Hearings, 1968, 90th Cong., 2d sess., 1968, Washington: US Government Printing Office, 1968.
18. Huston, James A., Colonel, USAR, "NATO and International Logistics", Military Review, Aug 1970, pp 83-90.
19. Huston, James A., Colonel, USAR, The Sinews of War: Army Logistics 1775-1953, Washington: Office of the Chief of Military History, US Army, 1966.
20. Johnson, Harold K., General, "Vietnam -- Questions and Answers", Transportation Proceedings, Feb 1968, pp 2-7.
21. "Joint Logistics Review Board Findings", Army Logistician Magazine, Nov-Dec 1970, pp 10-13.
22. Le Vacon, Y., "Allied Logistics in Europe", Military Review, Apr 1966, pp 89-98.
23. Miller, John H., LTC, Improvement in Initial Response of Logistic Support, Student Essay, Carlisle Barracks: US Army War College, 14 Feb 1969.
24. Morath, Eugene E., LTC, "Logistics for NATO's South-Eastern Flank," Military Review, Jan 1968, pp 44-50.

25. Morris, Thomas D., "Logistics--Responsive and Responsible", *Transportation Proceedings*, Aug 1968, pp 7-8, 25.
26. "Off-loading of Cargo by Helicopter Proves Success in Vietnam", *Sealift Magazine*, May 1968, p 17.
27. Orlowski, Edward S., "Logistics", *Review Magazine (DSA)*, Jan-Feb 1968, pp 16-17, 138-146.
28. Orlowski, Edward S., "Logistics, a Tool of National Strategy", *Signal Magazine*, Apr 1968, pp 27-29.
29. Palmer, W. B., LTG, "Commanders Must Know Logistics", *Army Information Digest*, Apr 1953, pp 3-14.
30. Port, A Tyler., "Logistics Support of the Buildup in Southeast Asia", *Transportation Proceedings*, Dec 1967, pp 8-9, 24-25.
31. Report by the Joint Logistics Review Board (JLRB) *Logistics Support in the Vietnam Era*, Volumes I, II, and III and Monographs 1-18, 1970.
32. Ruegg, R. G., LTG, USAF, "The Dynamics of Transportation: A Key to Air Force Logistics", *Transportation Proceedings*, May 1968, pp 2-8.
33. Sharp, U.S.G., Admiral, USN, "Vietnam: The Buildup and the War", *Transportation Proceedings*, Nov 1967, pp 8-13.
34. Sharp, U.S.G., Admiral, and Westmoreland, W.C., General, *Report on the War in Vietnam*, Washington: US Government Printing Office, 1968.
35. Shifley, Ralph L., "Deep Draft Ports and Instant Piers", *Transportation Proceedings*, June 1968, pp 2-8.
36. Shircliff, Robert G., Colonel, *More Push - Less Pull*, Student Essay, Carlisle Barracks: US Army War College, 25 Apr 1968.
37. Troutman, Burl A., CMDR, *Inordinate Delay*, Student Essay, Carlisle Barracks: US Army War College, 13 Jan 1967.

38. Ulsamor, Edgar E., "A Welcome Lift from the Air Lines", Transportation Proceedings, May 1969, pp 16-21.
39. US Military Assistance Command Vietnam, Command History 1965, (U) ~~TOP SECRET~~, Saigon, Vietnam, 1966.
40. US Senate, Committee on Armed Services, Airlift and Sealift to South Vietnam, 90th Cong., 1st sess., 1967, Washington: US Government Printing Office, 1967.
41. US Senate, Committee on Armed Services, The US Army in South Vietnam, 90th Cong., 1st sess., 1967, Washington: US Government Printing Office, 1967.
42. Wells, Robert A., Captain, "USAREUR, FRELOC, and the Future", Military Review, Apr 1969, pp 79-82.
43. Westmoreland, W.C., General, "A New Thinking Plateau, Essential for Army Progress", Armed Forces Magazine, 1 Dec 1968, pp 34-37.
44. Westmoreland, W.C., General, "The Vietnam Story: 1964-1968", Transportation Proceedings, Jul 1968, pp 2-7.
45. Whittemore, Kenneth S. Jr., Colonel, How Will the Theater Logisticians Cope with the C-5A? Student Essay, Carlisle Barracks: US Army War College, 12 Feb 1969.
46. Winn, Otis E., Colonel, USAF, "Transportation: Vital Element in Europe's Defense Posture", Transportation Proceedings, pp 25-29.